

## **Summary of the Ala Wai Public Workshop held on April 8, 2022 focusing on management measure development and screening within the Manoa sub-watershed.**

1. **Meeting Overview:** A workshop open to the public was held on 8 April 2022 from 12:00 pm to 1:10 pm to discuss screening of management measures in the Manoa sub-watershed. An average of 50 participants were in attendance; approximately 18 were represented by the City & County of Honolulu (CCH) and the U.S. Army Corps of Engineers (USACE) and the remainder were from the general public. A full list of participants is included in Attachment 1.

A brief presentation was provided by USACE project management team leads Tyson Vaughan, Cindy Acpal, and Eric Merriam, that focused on the study progress, management measure tracking tool, and screening of management measures. A full list of management measures (208 total) was provided on the project website, [www.honolulu.gov/AlaWai](http://www.honolulu.gov/AlaWai) (resources tab); however, due to time constraints, the presentation covered a summarized version of measures identified within the Manoa subbasin. A copy of the presentation is provided in Attachment 2.

The participants were allowed to choose which breakout rooms they wanted to participate in. Breakout Room #1 was facilitated by Tyson Vaughan and Kelley Philbin, and Breakout Room #2 was facilitated by Eric Merriam and Cindy Acpal. Both rooms discussed management measures in the Manoa subbasin. The main room remained open for participants who didn't choose a specific breakout room or who may have dialed in and were unable to transfer to the breakout rooms. A list of questions were provided to facilitate discussions:

- a. What questions do you have about the screening process?
- b. What questions do you have about specific measures described today?
- c. What questions do you have about other measures not mentioned yet?
- d. Have we captured measures appropriately thus far?
- e. Are we still missing any additional measures for this sub-basin?

2. **Key Discussion Points:** The following key discussion points were identified during the breakout room discussions:

a. **Stream Cleaning and Maintenance:** There were continued questions regarding current stream cleaning and maintenance. As part of the Federal project, a Project Partnership Agreement (PPA) with the local sponsor is required prior to construction. Within the PPA, the local sponsor agrees to operate and maintain the project upon construction completion. If there is no agreement, the project will not get funded for construction. Please refer to FAQs #17 & 31 on the project website (<https://www.honolulu.gov/alawai/faq.html>) for CCH's position with regard to clearing and maintaining streams.

b. **Local Expertise:** It was noted that local knowledge and on-the-ground understanding of watershed conditions are critical to ensuring the success of the study's analysis or plan. The study team agrees 100%. Multiple people on the team, from both USACE and CCH, live and work in the Ala Wai watershed and understand the local conditions. In addition, the team views the public meetings and workshops as invaluable opportunities to learn from residents and stakeholders in the watershed, to understand their values and perspectives, and to incorporate their knowledge into the analysis and planning process. Moreover, CCH's Department of Design & Construction is deeply involved in the day-to-day activities of the technical study. The study team includes both USACE staff and CCH staff. Thus, CCH engineers attend regular team meetings with USACE colleagues, representing the wants and needs and the professional

judgment of the CCH. At the end of the study, if CCH doesn't agree with the final recommended plan then it will not move forward for construction.

c. **Collaboration between Federal, State, and City entities:** There were concerns that the various entities are not communicating and collaborating together. This study is a partnership between the CCH (City) & USACE (Federal). Products such as the management measure tracking spreadsheet have been developed in collaboration with CCH. In addition, CCH is looking at measures that have been screened out for not meeting Federal requirements, to see if they could be implemented separately by CCH. The State of Hawaii has been involved in environmental discussions, but the team agrees more input from the State would be helpful.

This effort must focus solely on what the Federal government CAN do. Management measures not included in the Federal scope will be considered by CCH before, during, and after this Federal effort. These ongoing island wide programs for drainage, flood, and erosion control are included in CCH's Capital Improvement Plan (DDC) and maintenance for City owned facilities (DFM) efforts.

d. **Underground Detention:** There were several community members who requested that the team consider underground detention instead of above ground detention. Both above ground and underground detention are still under consideration in some locations. However, it is important to understand that underground detention is a lot more costly than above ground, with higher construction and maintenance costs. For these reasons it would likely be more cost effective to construct above ground. The team will still continue to consider underground where it is viable.

e. **Diversion Tunnels:** There was continued discussion about tunneling to divert water from the upper watershed to the Ala Wai harbor. Tunnels identified by the study team as potential measures, are included in the management measure tracking spreadsheet, and will be included in the screening process.

f. **Woodlawn stormwater drainage ditch:** A community member raised concerns for the stormwater ditch upstream of the Kahaloa St. bridge in Manoa, which is known to flood nearby homes. Provision, modification, and/or maintenance of drainage systems to capture and convey interior runoff in urban areas is a non-Federal responsibility; therefore, cannot be included in a recommendation made as a result of the GR report. This study can, however, make modifications to natural stream channels or previously modified natural waterways that help reduce backup within adjacent drainage systems. In other words, the study can consider modifications to Manoa Stream which may help to reduce backup to the nearby drainage ditch.

g. **Other projects within the watershed:** The Lin Young Chinese Association submitted a draft Environmental Assessment to CCH's Department of Planning and Permitting for a new 288-unit senior housing development at the Chinese cemetery. The University of Hawaii is planning a new 388-unit affordable rental housing development at 2560 Dole St. (the former NOAA site).

3. **Additional Management Measure:** The following additional measure was submitted by a meeting participant:

a. Construct a replacement "falls" near the Kahaloa Bridge which was previously flushed away in the 2004 flood. This could slow the velocity of water in Manoa Stream.

- i. The proposed measure is already included in the management measure tracking spreadsheet under #68. Other measures proposed at the Kahaloa bridge area include #69, 72, 73, 74, and 118.

A consolidated list of management measures can be found at <https://www.honolulu.gov/alawai/resources.html>.

4. There will be two additional meetings to discuss screening of management measures: April 14 (Ala Wai Canal and lower watershed) and April 22 (continued discussion; specific topics TBD).

5. The public is encouraged to stay engaged:

- a. Email the project team: [AlaWai@honolulu.gov](mailto:AlaWai@honolulu.gov)
- b. Post ideas on Crowdsourc Reporter (until 30 April), <https://lrp.maps.arcgis.com/apps/CrowdsourcReporter/index.html?appid=df9e77cff6454945ad3dc75716a044ec>
- c. Check the project website: [www.honolulu.gov/AlaWai](http://www.honolulu.gov/AlaWai)
  - i. Sign up for additional meeting notifications
  - ii. View or download the management measure tracker
  - iii. Updated FAQs
  - iv. Comment Form
  - v. Previous meeting recordings and presentation slides

## Attachment 1 – Workshop #2 Participants List

1. 8082\*\*\*\*10
2. 8083\*\*\*\*55
3. 8087\*\*\*\*80
4. AC
5. Alex Kozlov (DDC)
6. Anthony aalto
7. Ben Reder
8. Casey Maslan
9. Cindy Acpal
10. Cory yap
11. Dave Watase
12. Elton Fukumoto
13. Eric Merriam
14. Glenn Otaguro
15. Grant Tokumi
16. Haku Milles
17. Helen Nakano
18. Ian Ross – Makiki Neighborhood  
Board Chair
19. Jeffrey Herzog
20. Jill
21. Kelley Philbin
22. Lau, Clifford Y.L.
23. Laura Ruby
24. Lele
25. Luciano minerbi
26. Manoa resident
27. maril
28. Matthew Gonser
29. Melvia Kawashima
30. Mindy pennybacker
31. Minerva Anderson
32. Napualani Wong
33. Nekota
34. Peter peter
35. Rhiannon Kucharski
36. Richard Yoneda
37. Russell Fujita
38. Scott
39. Scott Snider
40. Sherri
41. Sidney Lynch
42. Stanton
43. Stephanie Ratte
44. Steve Holmes
45. Steve Wilson
46. Susan Henshaw

47. Terry Chan
48. Tyson Vaughan
49. UH – Jimmy Lagunero
50. Veneeta acson
51. Warren DFM
52. Winston
53. Yanling Li
54. Yvonne Chan

 = U.S. Army Corps of Engineers  
 = City & County of Honolulu

## Attachment 2 – Workshop #2 (Manoa) Presentation Slides

### ALA WAI FLOOD RISK MANAGEMENT GENERAL RE-EVALUATION STUDY

### SUB-BASIN WORKSHOP 2: MĀNOA

US Army Corps of Engineers (USACE)  
City and County of Honolulu (CCH)

8 April 2022

\*This session is being recorded.



Eric Tessmer (2017)



Carly Lim, Civil Beat (2016)



### SCHEDULE: SUB-BASIN WORKSHOPS



1. April 1, 2022 (F): Makiki and Pālolo Sub-basins
- 2. April 8, 2022 (F): Mānoa Sub-basin**
3. April 14, 2022 (Th): Ala Wai Canal and Lower Watershed
4. April 22, 2022 (F): Continued discussion; focus TBD



### HIGHLIGHTS: MAKIKI & PĀLOLO WORKSHOP



1. Constructive interest and engagement
2. Questions:
  - a. What is the design storm? (50-year? 20-year? etc.)
  - b. Which area or neighborhood are you intending to protect?
3. Significant concern about debris management and stream maintenance
4. Continued interest in SWIFT tunnels
5. Storage areas that do *not* require pumps should be prioritized
6. Several additional measures proposed
7. Received information about loi kalo



## TODAY'S AGENDA: MĀNOA



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1. Introduction (5 min) ← You are here!
2. Presentation (20 min)
3. Breakout discussion setup (3 min)
4. Facilitated breakout discussions (40 min)
5. Wrap-up (2 min)



## HOSTS & DISCUSSANTS



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### *Presenters (USACE):*

- **Eric Merriam**, PhD, PMP; Planner; *Study Lead*
- **Cindy Acpal**, Project Manager

### *MC / Lead Facilitator (USACE):*

- **Tyson Vaughan**, PhD; Sociologist

### *Additional Facilitators (USACE):*

- **Kelley Philbin**, PE; Engineer; *Technical Lead*
- **Ben Reder**, Project Manager

### *Discussant (USACE):*

- **Jeffrey Herzog**, Deputy Chief, Civil and Public Works

### *Discussants (CCH):*

- **Alex Kozlov**, PE; Director, Department of Design and Construction, City & County of Honolulu
- **Haku Milles**, PE, LEED AP; Deputy Director, Department of Design and Construction, City & County of Honolulu
- **Matthew Gonser**, AICP, CFM; Chief Resilience Officer, Office of Climate Change, Sustainability and Resiliency, City & County of Honolulu



## GROUND RULES: PRESENTATION



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1. Post comments and questions in the chat, or hold until breakouts.
2. Keep your audio on mute during the presentation.
3. If you are having technical difficulties, let us know via the chat and/or email to Tyson Vaughan: [Earl.T.Vaughan@usace.army.mil](mailto:Earl.T.Vaughan@usace.army.mil).





## MEASURE SCREENING: PROCESS

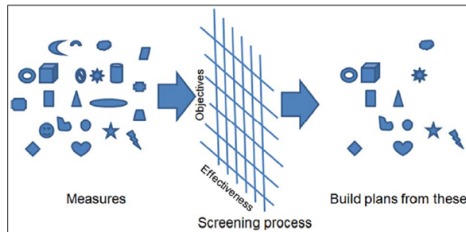


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### Iteration 1 (Complete)

Screening criteria:

- Study Authority – Is it within study authority?
- Technical Feasibility – Is it technically feasible?
  - Existing data and conditions, engineering standards and best practices



### Iteration 2 (Ongoing)

Screening/tiering criteria:

- Effectiveness – Extent it would reduce life risk and/or economic damages.
- Efficiency – Expected cost-effectiveness.
- Environmental Considerations – Benefits/impacts.

Existing models/data: water volumes, expected damages, high-level costs

Tiering to prioritize analyses:

- Tier 1: Highest analytical priority. Results could screen other measures.
- Tier 2: Assessed after Tier 1 measures.
- Tier 3: Assessed after Tier 2 measures.

*Not a hierarchy of importance. Allows team to maximize efficiency. All measures will be assessed.*



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## MANOA NONSTRUCTURAL, NATURAL & NATURE-BASED

No	Measure Name	Notes	Status / next steps
85			
91	Forest/Invasive Management	Modeling will be conducted to quantify the extent to which forest management reduces flood risk.	Tier 1 for hydrologic modeling
104	Decrease Imperviousness	Modeling will be conducted to quantify the extent to which decreasing impervious surfaces throughout the watershed reduces flood risk.	Tier 1 for hydrologic modeling
179	Permeable Pavement at Manoa Marketplace	Replace parking lot with permeable pavement to reduce direct runoff contributing to flows down Woodlawn Drive.	Under consideration
184	Nonstructural measures	Potential for nonstructural measures (e.g., elevation, floodproofing, relocation, flood warning systems) will be assessed once economic models are finalized.	Tier 1 for economic modeling
96			
97	Debris Management	Modeling to assess potential problem areas for debris buildup will be completed first. Specific management measures will then be identified.	Under consideration
83			
112	Wetlands, agriculture	Storage requirements and potential will be modeled initially. Potential for incorporation of wetlands and/or agricultural features will then be assessed.	Under consideration
124			
169	Manoa Channel Naturalization	Return channel to a more natural state by removing concrete and replace with natural slope material.	Under consideration

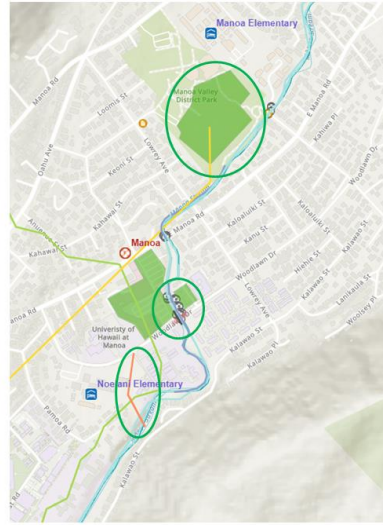
'Under consideration' indicates that it has not yet been assessed under the second screening iteration to-date.





## MANOA MEASURES: STRUCTURAL

No.	Measure Name	Notes	Status
76	Manoa Park Detention Basin	Use Manoa Valley District Park as a detention basin to capture peak flooding and slowly release to watershed below.	Tier 1
69	Kahaloa Bridge widening	Widen the Kahaloa bridge to allow a larger volume of storm water drainage runoff feeding into Manoa Stream just above the bridge.	Under consideration
166	Woodlawn Bridge Modification	Raise bridge to prevent debris buildup	Tier 1
167	Woodlawn Drive Bypass	Capture overflow water from Woodlawn Drive and return to stream	Tier 1
71	Woodlawn Bridge bypass box culvert	Create a bypass box culvert that traverses around both bridge abutments and exits into the existing stream channel. Increase the number and size of catch basins and drain pipes.	Tier 1
129	Increase stream capacity	Widen the stream or build floodwalls to increase stream capacity near the Woodlawn Bridge	Tier 1
175	Manoa Innovation Center Parking Lot Storage	Use natural floodplain/parking lot to contain flood waters and store water.	Tier 1
70	Drop structure	Install a "falls" just before the bridge at Woodlawn Drive to help push the silt and debris past the bridge to prevent future floods.	Under consideration
176	Woodlawn Bridge Floodwall	Floodwall (permanent or deployable) at Woodlawn Drive Bridge vicinity to contain water to channel	Under Consideration



Top Left: Manoa Valley District Park  
Bottom Left: Kahaloa Drive Bridge  
Top Right: Woodlawn Bridge



## MANOA MEASURES: STRUCTURAL CONT.

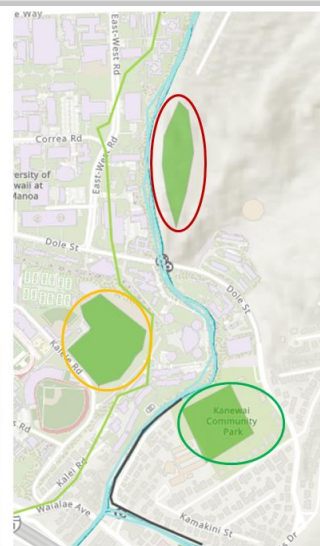
No.	Measure Name	Description	Status
57	Kanewai Detention basin	Use Kanewai as a detention basin (preference for underground detention)	Tier 1
90	UH practice fields detention basin	Pipe floodwaters to the UH practice fields for additional storage	Tier 3
183	Kalaepohaku Ridge Underground Detention	Large underground storage tank on the embankment of the Kalaepohaku Ridge	Screened
55	Kanewai detention & bypass conduit	Detention basin at Kanewai Community Park and a conduit that bypasses Manoa-Palolo and Ala Wai canal.	Under consideration
177	Koali Rd. Floodwall	Floodwall along left bank of Manoa Stream, downstream of Kanewai Community Park to protect community from upstream peak flows	Under consideration



UH Practice Fields



Kanewai Community Park





## MANOA MEASURES: STRUCTURAL CONT.



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No	Measure Name	Description	Status
66 180	SWIFT tunnels	Two 12' diameter subsurface tunnels (~40' under) from Manoa and Palolo shooting straight out to sea using gravity flow	Tier 3
67	Install baffling in streams	Install baffling in the streams to slow the water down.	Under consideration
68	Check dams	Construct check dams in Manoa to slow the water down ahead of areas prone to flooding	Under consideration
72	Manoa Stream Dredging	Annually dredging Manoa Stream from where the stormwater drainage ditch feeds into the stream from the Woodlawn Street drainage to the end of the stream area at the end of the Manoa Valley District Park	Under consideration
168	Manoa Channel Modification	Deepen/Widen channel to provide more within-bank storage	Under consideration



## DISCUSSION GROUPS



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Webex main room. (here)  
Facilitator: Ben Reder

### Discussion group 1.

Facilitators: Tyson Vaughan and Kelley Philbin (technical lead)

### Discussion group 2.

Facilitators: Eric Merriam (study lead) and Cindy Acpal (project manager)



## QUESTIONS FOR YOU



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1. What questions do you have about the screening process?
2. What questions do you have about specific measures described today?
3. What questions do you have about other measures not mentioned yet?
4. Have we captured measures appropriately thus far?
5. Are we still missing any additional measures for this sub-basin?



## GROUND RULES: DISCUSSION GROUPS



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1. Post comments and questions in the chat or use the “raise hand” tool.
2. Keep your audio on mute unless speaking.
3. Introduce yourself briefly the first time you speak.
4. When speaking, be conscious of acronyms and technical language.
5. Be mindful and help ensure that others have a chance to speak.



## MAHALO



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Thank you for your participation! Please stay engaged:

- Email the project team: [AlaWai@Honolulu.gov](mailto:AlaWai@Honolulu.gov).
- Post more ideas on Crowdsource Reporter! (until April 30)  
<https://lrp.maps.arcgis.com/apps/CrowdsourceReporter/index.html?appid=df9e77c ff6454945ad3dc75716a044ec>
- Check the project website: <https://www.honolulu.gov/AlaWai>.
  - Sign up for additional meeting notifications
  - Updated management measure tracker
  - Updated FAQs
  - Comment form
  - Link to Crowdsource Reporter

### Attachment 3 – Workshop #2 Chat Comments (Main Room)

- 11:47 AM from Tyson Vaughan to everyone: Slides for today:  
[https://www.honolulu.gov/rep/site/ddc/ddc\\_docs/AlaWai\\_Public\\_Workshop\\_2-for\\_distribution.pdf](https://www.honolulu.gov/rep/site/ddc/ddc_docs/AlaWai_Public_Workshop_2-for_distribution.pdf)
- 11:48 AM from Tyson Vaughan to everyone: Updated management measure tracker:  
[https://www.honolulu.gov/rep/site/ddc/ddc\\_docs/Preliminary\\_Management\\_Measure\\_Tracking\\_Spreadsheet\\_6April2022\\_PublicMtg.pdf](https://www.honolulu.gov/rep/site/ddc/ddc_docs/Preliminary_Management_Measure_Tracking_Spreadsheet_6April2022_PublicMtg.pdf)
- 12:04 PM from Glenn Otaguro to everyone: Ala Wai watershed includes storm water drainage systems?
- 12:04 PM from Tyson Vaughan to everyone:  
[https://www.honolulu.gov/rep/site/ddc/ddc\\_docs/Preliminary\\_Management\\_Measure\\_Tracking\\_Spreadsheet\\_6April2022\\_PublicMtg.pdf](https://www.honolulu.gov/rep/site/ddc/ddc_docs/Preliminary_Management_Measure_Tracking_Spreadsheet_6April2022_PublicMtg.pdf)
- 12:05 PM from Kelley Philbin to everyone: Provision, modification, and/or maintenance of drainage systems to capture and convey interior runoff in urban areas is a non-Federal responsibility and therefore cannot be included in a recommendation made as a result of this general reevaluation report. However, this study can make modifications to natural stream channels or previously modified natural waterways that help reduce backup within adjacent drainage systems. This study will also be considering modification of existing storm systems as a means for underground bypass channels.
- 12:06 PM from Tyson Vaughan to everyone: Earl.T.Vaughan@usace.army.mil
- 12:07 PM from Tyson Vaughan to everyone: Slides for today:  
[https://www.honolulu.gov/rep/site/ddc/ddc\\_docs/AlaWai\\_Public\\_Workshop\\_2-for\\_distribution.pdf](https://www.honolulu.gov/rep/site/ddc/ddc_docs/AlaWai_Public_Workshop_2-for_distribution.pdf)
- 12:10 PM from Scott Snider to everyone: Aloha Ian Ross and Glenn Otaguro
- 12:12 PM from UH - Jimmy Lagunero to everyone: define feasible please.
- 12:12 PM from Glenn Otaguro to everyone: The Woodlawn Ditch / Manoa Stream junction was directly responsible for the 2004 flood that over flowed in the East Manoa Road / Kahaloa Drive area, so it should be included in the efforts to mitigate future flood problems for Manoa Stream
- 12:12 PM from sidney lynch to everyone: Does the city have any plans to upgrade the storm drain system in the Ala Watershed? If so, what areas and are these plans on the city site somewhere?
- 12:13 PM from Kelley Philbin to everyone: Glenn - This measure is being tracked! Thank you for your contribution.
- 12:13 PM from Alex Kozlov DDC to everyone: FAQ 17 and 31 speak to City efforts regarding streams and drainage systems.
- 12:14 PM from Matthew Gonser to everyone:  
<https://www.honolulu.gov/alawai/faq.html>
- 12:16 PM from UH - Jimmy Lagunero to everyone: in the October 30, 2004 Manoa Flood lives could have been lost. Students had to break out to escape from the basement of Hamilton Library, and a researcher almost drowned trying to get to her lab on East West road. Prioritize on saving lives will be limited to what cost?
- 12:16 PM from Kelley Philbin to everyone: Jimmy - The study will also assess non-economic benefits, including improved life safety, environmental benefits, and other social benefits.
- 12:18 PM from Tyson Vaughan to everyone: "H & H" = hydraulic and hydrologic
- 12:18 PM from UH - Jimmy Lagunero to everyone: Thanks Kelley. What is the criteria where non-economic benefits such as Life safety will be used?

- 12:19 PM from Kelley Philbin to everyone: Jimmy - I will have to lean on the project manager to help answer that. My lane is more technical and I don't want to give you the wrong answer. This is a great question to ask in your breakout group!
- 12:20 PM from Glenn Otaguro to everyone: Widening Kahaloa bridge is still important now more than ever... during the last big rainfall of 9 inches over 24 hours the bridge is about 3 feet short of over topping
- 12:20 PM from Kelley Philbin to everyone: Glenn - Great! That measure is also being tracked. Bridge modification is under consideration.
- 12:21 PM from Jeffrey Herzog to everyone: Think of the Hilo Bay Soccer Fields on the Big Island.
- 12:21 PM from UH - Jimmy Lagunero to everyone: While efforts have occurred including relatively recent work just pre-covid at the woodlawn bridge, unfortunately the build up of debris continues due to the failure to regularly maintain and dredge the debris buildup.
- 12:22 PM from Luciano Minerbi to everyone: Several valuable and needed measures are "Screened Out" because outside USACE study authority but if State DLNR & or C&C would address them they could be key to the package of measure to address the complex and integrated problem of flood mitigation in the Waikiki ahupua'a. Potential solutions should not be screened out just because they are not a kulana of the fed, they can be for the state & county: they have to collaborate. Mahalo
- 12:22 PM from Glenn Otaguro to everyone: Kahaloa bridge used to have a "falls" until the 2004 flood that flushed it downstream... any chance of a replacement falls for that area?
- 12:23 PM from UH - Jimmy Lagunero to everyone: your photo on the right shows the debris build up
- 12:23 PM from Sidney Lynch to everyone: Is there a set schedule for the city to clear the Woodlawn Bridge area? If so, what is it? If not, can one be established?
- 12:23 PM from Dave Watase to everyone: Exactly, all you need to do is put a 10'x10' concrete conduit or large diameter pipe to increase excessive flow and to act like a emergency spillway to get from the upper side of Woodlawn bridge to the downstream side. Originally the USACE bypass was extremely long for no reason.
- 12:24 PM from Tyson Vaughan to everyone: This USACE project will indeed only be one piece of the whole flood risk management puzzle, and will need to complement efforts by the city, state, and other organizations.
- 12:24 PM from Glenn Otaguro to everyone: Woodlawn bridge needs to be dredged annually... when is the next dredging?
- 12:24 PM from Kelley Philbin to everyone: Glenn - We are considering grade control structures, including rock check dams, weirs, and falls.
- 12:24 PM from UH - Jimmy Lagunero to everyone: Tunneling under the dorms????
- 12:25 PM from Rhiannon Kucharski to everyone: @Jimmy - technically feasible means technically possible/engineeringly sound
- 12:26 PM from UH - Jimmy Lagunero to everyone: are you also aware of other planned construction next to the stream planned by the University at the old fisheries facility? which would also impact your planned measures just stated.
- 12:27 PM from Dave Watase to everyone: In 2004 flood study showed that the Woodlawn bridge had an opening of only about 5 feet. The original design 1974 was to have 10' opening and a capacity of 8300 cfs. The silt build up reduced the capacity to around 2800 cfs, debris blockage reduced it to 2000 cfs, and they estimated about 2000 cfs went down to UHM. The USACE did an improvement to Woodlawn bridge a few

years ago. Took out the dip that lead to the silt built up by tapering the slope several hundred feet above and below the Woodlawn bridge.

- 12:27 PM from UH - Jimmy Lagunero to everyone: and the USACE project at Woodlawn bridge, continues to have build up under the woodlawn bridge.
- 12:27 PM from Winston to everyone: Is this powerpoint posted?
- 12:28 PM from Dave Watase to everyone: UHM said that a 2000 cfs flood can safely pass through the University because they built a skirt around Hamilton Library.
- 12:28 PM from Kelley Philbin to everyone: Jimmy - These are still preliminary designs and mesures, so we are not aware of every project planned. If you have information about that construction we would love for you to share it!
- 12:28 PM from Rhiannon Kucharski to everyone: @ Winston:  
[https://www.honolulu.gov/rep/site/ddc/ddc\\_docs/AlaWai\\_Public\\_Workshop\\_2-for\\_distribution.pdf](https://www.honolulu.gov/rep/site/ddc/ddc_docs/AlaWai_Public_Workshop_2-for_distribution.pdf)
- 12:29 PM from UH - Jimmy Lagunero to everyone:  
<https://www.hawaii.edu/news/2020/05/05/uh-manoa-housing-project-partner/>
- 12:29 PM from Dave Watase to everyone: The Woodlawn bridge should be able to safely pass a 50 year flood and a little short of the 100 year flood cfs.
- 12:29 PM from UH - Jimmy Lagunero to everyone: this is the planned housing at the former Fisheries location adjacent to Dole Street bridge and the Manoa Stream.
- 12:30 PM from Dave Watase to everyone: Kahaloa Bridge is 5400 cfs, Lowrey Bridge 5700 cfs, East Manoa Bridge is 3800 cfs, and Woodlawn 2800 cfs (2004) and probably around 8000 cfs (2022). The bottlenecks at this time is East Manoa Bridge.
- 1:13 PM from Winston to everyone: I'd like to see a simplified diagram of waterflow, where certain basins or tunnels might then take some of that flow away and to where those tunnels might go.
- 1:13 PM from Kelley Philbin to everyone: Winston - we are in the very early stages of conceptual designs
- 1:14 PM from UH - Jimmy Lagunero to everyone: Could we be listed in a email list instead of having to read about the meeting sin the local news?
- 1:14 PM from UH - Jimmy Lagunero to everyone: site
- 1:14 PM from Kelley Philbin to everyone: yes! There is a signup on the website
- 1:14 PM from Winston to everyone: I'd like an in-person meeting at the end of this with 3-D models and a full discussion.
- 1:14 PM from melvia kawashima to everyone: thank you!
- 1:14 PM from luciano minerbi to everyone: mahalo
- 1:15 PM from Tyson Vaughan to everyone: We will have an in-person workshop this summer. And I am excited to say that I will be there! I am looking forward to meeting you all.

#### Attachment 4 – Workshop #2 Chat comments (Breakout Room #1 - Manoa)

- 12:33 PM from UH - Jimmy Lagunero to everyone in this session: UH planned construction <https://www.hawaii.edu/news/2020/05/05/uh-manoa-housing-project-partner/>
- 12:40 PM from Sidney Lynch to everyone in this session: USACE gave the HEC RAS software to Stantec. Can this be given to other organizations?
- 12:42 PM from Sidney Lynch to everyone in this session: Great point Luciano!
- 12:43 PM from Tyson Vaughan to everyone in this session: You asked that last week, too Sidney. Will try to get an answer for you. I'm not sure about how those links work, but I'll see if I can find out by next week.
- 12:43 PM from Sidney Lynch to everyone in this session: Thx!
- 12:44 PM from Sidney Lynch to everyone in this session: Agree that all 3 entities should be represented in the report with what each entity can do and will do and have plans to do. Lot of the burden is on the city - maintenance and storm drain system
- 12:45 PM from Sidney Lynch to everyone in this session: Can the city publish a list of which streams are planned to be cleaned and when or is it more of a matter of reacting to which is the worst?
- 12:47 PM from Sidney Lynch to everyone in this session: People have requested such a schedule - for instance educational work done near Kailmuki High School is bulldozed without notifying the schools working in the area so all their work is destroyed. Can't the city have such a notification site?
- 12:51 PM from Yvonne Chan to everyone in this session: Can you incorporate community based measures that incentivize holding water on private property (like rain gardens, permeable surfaces, bioswales, water tanks, etc) and analyze how much water could be captured if we reduced impermeable surfaces?
- 12:51 PM from Sidney Lynch to everyone in this session: Your spreadsheet could have three columns USACE CITY STATE
- 12:52 PM from UH - Jimmy Lagunero to everyone in this session: The October 30, 2004 flood occurred almost 18 years ago. The public is quite frustrated and angry that the need for dedicated stream maintenance has yet to be established.
- 12:52 PM from Ian Ross - Makiki Neighborhood Board Chair to everyone in this session: Mahalo for the comments about schedules. This is certainly a valuable resource for our Neighborhood Board system and can also be helpful for the network of nonprofits in our community.
- 12:52 PM from Sidney Lynch to everyone in this session: Your spreadsheet could have three columns USACE CITY STATE and state which measure would fall under which agency
- 12:56 PM from Tyson Vaughan to everyone in this session: [https://www.honolulu.gov/rep/site/ddc/ddc\\_docs/Preliminary\\_Management\\_Measure\\_Tracking\\_Spreadsheet\\_6April2022\\_PublicMtg.pdf](https://www.honolulu.gov/rep/site/ddc/ddc_docs/Preliminary_Management_Measure_Tracking_Spreadsheet_6April2022_PublicMtg.pdf)
- 12:57 PM from Sidney Lynch to everyone in this session: Is the flood planning taking into consideration the proposed senior housing in the Chinese cemetery area? Isn't that near one of the previous planned basins?
- 12:58 PM from Sidney Lynch to everyone in this session: Maybe Haku can
- 12:58 PM from Sidney Lynch to everyone in this session: Its
- 12:58 PM from Sidney Lynch to everyone in this session: It's only recently in the news
- 12:58 PM from Sidney Lynch to everyone in this session: Heard it's being fast tracked

- 12:59 PM from UH - Jimmy Lagunero to everyone in this session: <https://www.hawaiinewsnow.com/2022/03/12/some-manoa-residents-raise-concern-over-construction-kupuna-housing-project/>
- 12:59 PM from Sidney Lynch to everyone in this session: Jeff can show it
- 1:00 PM from UH - Jimmy Lagunero to everyone in this session: The Lin Yee Chung Association wants to build 288 affordable rentals on preservation land
- 1:01 PM from UH - Jimmy Lagunero to everyone in this session: they've already submitted their draft environmental assessment to the city Department of Planning and Permitting," said Brett Kurashige, who opposes the project. "We're just really upset about this proposed project."
- 1:01 PM from UH - Jimmy Lagunero to everyone in this session: The association submitted a draft environmental assessment in 2021 and got approval from DPP. It plans to start construction in 2024.
- 1:03 PM from UH - Jimmy Lagunero to everyone in this session: my recent posts where all from that news article link I posted above.
- 1:03 PM from UH - Jimmy Lagunero to everyone in this session: sorry were.
- 1:03 PM from Sidney Lynch to everyone in this session: Yes that's it. So that area where this senior housing might go might be ripe for flooding. Is the city aware of that?
- 1:03 PM from Haku Milles to everyone in this session: Thank you for the background, Jimmy
- 1:04 PM from Tyson Vaughan to everyone in this session: thanks Jimmy! And thanks Sidney for this info!
- 1:04 PM from Sidney Lynch to everyone in this session: THx!
- 1:05 PM from Sidney Lynch to everyone in this session: So the various city departments talk to each other?
- 1:05 PM from Sidney Lynch to everyone in this session: Do the various departments talk to each other?
- 1:05 PM from Luciano Minerbi to everyone in this session: No commitment by State and C&C to add their assessment into the USACE Table --so sad!!?
- 1:07 PM from UH - Jimmy Lagunero to everyone in this session: At our session last year, I was very happy that the Mayor took the time to attend, and has made the commitment, that previous administrations did not do. So like then, and like now, I am hopeful, though not very confident. Especially as it has been almost 18 years since the Manoa flood.
- 1:07 PM from Alex Kozlov DDC to everyone in this session: I appreciate Luciano Minerbi point about a more holistic solution or set of solutions. As we continue to refine alternatives, we will look at actions the City can take above the scope of USACE. We will communicate that to you. Also, the stream maintenance solutions are part of the whole and are necessary.
- 1:08 PM from Sidney Lynch to everyone in this session: Can't part of the COVID emergency funding be put into a maintenance fund?
- 1:08 PM from UH - Jimmy Lagunero to everyone in this session: The low hanging fruit is to maintain what we have, instead of so much design money to others
- 1:09 PM from Sidney Lynch to everyone in this session: Montecito CA had a massive flood. Private citizens gathered millions for flood abatement. AND they have a million dollar endowment for MAINTENANCE
- 1:10 PM from Sidney Lynch to everyone in this session: Call Henk Rogers, Pierre Omidyar and Larry Ellison and Mark Zuckerberg to each donate a million. For the islands they are one. Name the endowment funds after them

- 1:11 PM from UH - Jimmy Lagunero to everyone in this session: Again, we have a new opportunity with this Mayor and this new team. Thank you for that.

## Attachment 5 – Workshop #2 Chat comments (Breakout Room #2 - Manoa)

- 12:30 PM from Matthew Gonser to everyone in this session: Aloha, Matt Gonser, City Office of Climate Change, Sustainability & Resiliency. Happy Friday!
- 12:31 PM from melvia kawashima to everyone in this session: apologies but my monitor does not have a camera! From Councilman Calvin Say's office...
- 12:31 PM from Winston to everyone in this session: Winston Welch, The Outdoor Circle
- 12:33 PM from Matthew Gonser to everyone in this session: Reference is Slide 14 and 17:  
[https://www.honolulu.gov/rep/site/ddc/ddc\\_docs/AlaWai\\_Public\\_Workshop\\_2-for\\_distribution.pdf](https://www.honolulu.gov/rep/site/ddc/ddc_docs/AlaWai_Public_Workshop_2-for_distribution.pdf)
- 12:33 PM from melvia kawashima to everyone in this session: apologies- is SWIFT an acronym?
- 12:33 PM from Scott Snider to everyone in this session: I had a concern about a missing element in the checklist. There is 1.2 miles of stream from District Park to BWS Land that is privately owned and needs regular cleaning and maintenance. There are 58 landowners that actually own this part of the stream and is considered private so City and County DFM will not maintain and it is overgrown and strewn with debris. Regular cleaning would reduce flood potential for residents
- 12:34 PM from Matthew Gonser to everyone in this session: SWIFT (Subsurface Watershed Inundation Flow Technology) - this was an analysis conducted in the previous iteration of the project by a team funded by City Council.
- 12:35 PM from Dave Watase to everyone in this session: Two major concerns that I see are where Woodlawn stream and Manoa stream intersect at 90 degrees at the Woodlawn confluence. The other is the Palolo Stream and Manoa Stream intersection which is also at a 90 degrees intersection at the Palolo Stream confluence. On big storms this causes a lot of turbulence and slows the flows on the main stream. A 90 degree diverter would be nice.
- 12:38 PM from melvia kawashima to everyone in this session: mahalo Matthew
- 12:38 PM from Winston to everyone in this session: I don't see any use of Ala Wai Golf Course or Kaimuki High School as possible detention basins, whether as a place to hold water slowly or as an outlet for a tunnel from, say, Manoa Valley District Park
- 12:38 PM from Winston to everyone in this session: Of course this would assume that a berm would be created around both/either Ala Wai Golf Course and/or Kaimuki High School fields
- 12:39 PM from Matthew Gonser to everyone in this session: Next week, Thursday, @ noon will cover the geographic area of Ala Wai Canal and Lower Watershed: <https://www.honolulu.gov/alawai>.
- 12:39 PM from Matthew Gonser to everyone in this session: Thank you, Winston. The series this month is working through different geographies.
- 12:41 PM from Dave Watase to everyone in this session: If you are going to look at Manoa District Park as a detention basin. Underground is preferred and laterally placed unlike previous detention basins that essentially traversed across the stream with the detention storage pitted out behind the earthen dam. Maintenance was a concern because it does not exist, it would also be subject to debris blockage because everything above the detention basin is forest. Most likely a real big storm for us is a down graded hurricane, or when we get hit with a hurricane. Those flows could

potentially be much larger than a meteorological 100-year event. And even with safety factors these in stream detention basins could experience debris blockage and overtop for a storm larger than it was designed for. If that happens failure would put at risk the residents living below. Not just high water flooding but catastrophic type of flooding like the Koloko dam failure on Kauai.

- 12:43 PM from Winston to everyone in this session: Thanks Matt
- 12:43 PM from Winston to everyone in this session: Do you have the same slide show for Palolo last week for reference as well you can put here?
- 12:43 PM from Scott Snider to everyone in this session: Thanks Elton Wong for the shout out!
- 12:44 PM from Matthew Gonser to everyone in this session: Today's and last week's materials are available here: <https://www.honolulu.gov/alawai>. Click the date for the slides.
- 12:45 PM from Winston to everyone in this session: Mahalos
- 12:46 PM from Dave Watase to everyone in this session: I support OceanIt's SWIFT concept by using tunnels. Their Manoa tunnel only went up to St. Francis. I would extend it to the Manoa District Park. By intercepting the flood waters at the district park, it would further protect Lowrey, E. Manoa, and Woodlawn bridge from overtopping. Currently, Kahaloa (5400cfs), Lowrey (5700cfs), E Manoa (3800cfs) and Woodlawn 2800 cfs (in 2004) with debris blockage (2000cfs in 2004), original 1974 design is 8300cfs. Woodlawn in 2022 with the USACE's recent improvements should bring the capacity close to the original design capacity of 8300cfs.
- 12:46 PM from Winston to everyone in this session: Will chat notes be posted as well so people can see other concerns or ideas on the city website? That would be very useful.
- 12:46 PM from Matthew Gonser to everyone in this session: Same website, Winston. See meeting minutes, which includes chat.
- 12:47 PM from Winston to everyone in this session: Perfect. Thanks.
- 12:49 PM from Dave Watase to everyone in this session: OceanIt only did their preliminary study with a 12' diameter pipe. They ended their contract with the City Council without exploring the feasibility of multiple 12' diameter tunnels or larger diameter tunnels. Also, I had asked them to consider multiple entry points to better utilize the tunnels throughout the whole duration of the storm and to provide flexibility in the event the storm doesn't follow the selected storms used to generate the models. Because we know that no storm is the same.
- 12:50 PM from Matthew Gonser to everyone in this session: The City storm drain system is has been publically available for years and the viewer was recently updated - there are ongoing improvements of this asset management resource: <https://cchnl.maps.arcgis.com/apps/webappviewer/index.html?id=304d2c2ba03f4c17ac0941bd8bdfcc8c>
- 12:50 PM from Cindy Acpal to everyone in this session: @Laura - here's a link to the map of the City's drainage system: <https://geoportal.hawaii.gov/datasets/cchnl::storm-water-conduit/explore?location=21.306627%2C-157.843103%2C14.58>
- 12:51 PM from Scott Snider to everyone in this session: woodlawn 90 degree confluence might be item 74?
- 12:52 PM from Cindy Acpal to everyone in this session: @Scott - yes, item 74
- 12:53 PM from Dave Watase to everyone in this session: Rather than using Kanewai Park Detention basin, when the capacity permits, when the head or elevation level permits, flood water can be intercepted both at the Kanewai Park area and

tunneled with head pressure to the Ala Wai Golf Course. Since the flood waters are captured at a higher elevation, the Ala Wai Golf Course and earth berms can be built up higher above ground to increase the capacity holding ability for the AWGC.

- 12:53 PM from Cindy Acpal to everyone in this session: These presentation slides are located on the Public Engagement tab of the website, <https://www.honolulu.gov/alawai/public-engagement.html>
- 12:54 PM from Dave Watase to everyone in this session: The Ala Wai Golf Course dwarfs all the upstream detention alternatives.
- 12:55 PM from Winston to everyone in this session: Of the entire basin, is there a map where we can see the presumed flows in the entire basin for these floods? I realize that different valleys would be affected differently, but what models are you using assuming constant rain over the entire basin?
- 12:55 PM from Cindy Acpal to everyone in this session: @Dave - Kanewai to golf course is listed as Measure 58
- 12:56 PM from Winston to everyone in this session: I'd like to better understand flow needs that are anticipated, since they are not all equal and would appreciate any guide on this.
- 12:59 PM from Dave Watase to everyone in this session: The OceanIt plan reduced the 100 year flood to around a 20-25 year flood but it was kind of close to the original budget of \$345 million. OceanIt's plan did not include engineering and project management but with 2 tunnels was pegged around \$262 million. Around \$70 million was to extend the two tunnels a quarter of a mile into the ocean which could cause all kinds of environmental concerns. I proposed that they instead route the tunnels to the Ala Wai Harbor and again bypassing the Ala Wai Canal.
- 12:59 PM from Laura Ruby to everyone in this session: I also mentioned last week that the uh dorm across from Koali Rd and the parking structure at Hawaiian Studies have their lower stories knocked out/opened up to allow any excess flooding to just wash through.
- 12:59 PM from Cindy Acpal to everyone in this session: @Winston - the flows from previous models can be found in the H&H appendix: <https://www.poh.usace.army.mil/Portals/10/docs/projectreviewplans/Appendix%20A%20-%20H-H.pdf?ver=2017-05-24-120452-233>
- 1:00 PM from Dave Watase to everyone in this session: This would free up funds to make one or more tunnels from the Ala Wai Golf Course to the Ala Wai Harbor that can be used to drain the upstream location with head pressure to the Ala Wai Golf Course.
- 1:05 PM from Rhiannon Kucharski to everyone in this session: The Corps does have other technical assistance authorities under which we can help Cities/Counties/States with Stormwater drainage technical studies and Stormwater management plans.
- 1:08 PM from Dave Watase to everyone in this session: Ballpark the 100-year flood will generate a flow of 20,000 cfs. The Ala Wai Canal can handle a 10-year flood which is ballpark around 10,000 cfs. What this means is that not taking into other factors like sea level rise or tide surges, the Ala Wai Canal can continue to be used to its full capacity. By intercepting the flood waters higher in the valleys and bypassing the flat (level with slow velocity) Ala Wai Canal. In other words, if we can divert 10,000 cfs we can provide added protection. A third tunnel to Makiki which goes direct to Ala Wai Harbor should be an option. I proposed a "Octopus Plan" which as funds become available could include an underground pumping station on the AWGC with a switch station to optimize the performance to any given storm not just the one modeled. It could

use gravity flow when available, AWGC detention for emergency overflows again captured at higher elevations, and when gravity flow is too slow, turn on the pumps.

- 1:10 PM from Dave Watase to everyone in this session: Another option would be to incorporate a flood gate at the Ala Moana Blvd. bridge. This can protect the Ala Wai Canal from tide surges up to the height of the Ala Moana Bridge. It could also be used to block off the Canal a head of a hurricane and the canal can be predrained to create addition detention storage along with the golf course. When the canal is higher than the ocean level the gates would be opened to allow gravity flow. Along with the Octopus plan with extended and expanded SWIFT tunnels